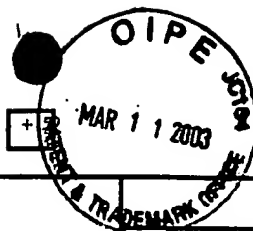


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PTO/SB/08A (08-00)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Application Number 09/934,739
Filing Date August 22, 2001
First Named Inventor Louis B. ROSENBERG
Group Art Unit 2675
Examiner Name Bell, Paul A.
Attorney Docket Number IMMR-020/03US (New) IMM1P018B (Old)

MAR 13 2003

Technology Center 2600

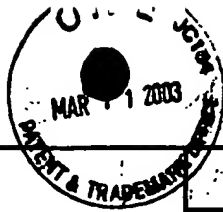
Sheet 1 of 3

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
	A1	5,785,630		Bobick, et al.	07/28/1998
	A2	5,766,016		Sinclair et al.	06/16/1998
	A3	5,547,382		Yamasaki et al.	08/20/1996
	A4	5,466,213		Hogan et al.	11/14/1995
	A5	5,334,027		Wherlock	08/02/1994
	A6	5,309,140		Everett, Jr., et al.	05/03/1994
	A7	5,299,810		Pierce et al.	04/05/1994
	A8	5,275,174		Cook	01/04/1994
	A9	5,271,290		Fischer	12/21/1993
	A10	5,240,417		Smithson et al.	08/31/1993
	A11	5,212,473		Louis	05/18/1993
	A12	5,078,152		Bond et al.	01/07/1992
	A13	5,038,089		Szakaly	08/06/1991
	A14	5,035,242		Franklin et al.	07/30/1991
	A15	5,022,407		Horch et al.	06/11/1991
	A16	5,019,761		Kraft	05/28/1991
	A17	4,934,694		McIntosh	06/19/1990
	A18	4,930,770		Baker	06/05/1990
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	A20	4,794,392		Selinko	12/27/1988
	A21	4,713,007		Alban	12/15/1987
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	A27	4,160,508		Salisbury, Jr.	07/10/1979
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	A32	3,517,446		Corlyon et al.	06/30/1970
	A33	3,497,668		Hirsch	02/24/1970
	A34	3,220,121		Cutler	11/30/1965
	A35	3,157,853		Hirsch	11/17/1964

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.



#17

Substitute for form 1449A/PTO		Complete if Known		RECEIVED	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/934,739	MAR 13 2003	
		Filing Date	August 22, 2001		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2675	Technology Center 2800	
		Examiner Name	Bell, Paul A.		
Sheet	2	of	3	Attorney Docket Number	IMMR-020/03US (New) IMM1P018B (Old)

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Office ¹	Number ²	Kind Code ³ (if known)		
	B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990
	B2		WO 95/33459	A1	EXOS, Inc.	11/30/1995

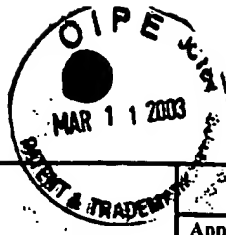
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C1	Baigrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990	
	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993	
	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90	
	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985	
	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990	
	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993	
	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989	
	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990	
	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90	
	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993	
	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992	
	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WAI1-11:00, pp. 332-337	
	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992	
	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992	
	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993	
	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990	
	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90	
	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980	
	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981	

¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁴ Applicant is to place a check mark here if English language Translation is attached.



#7

Substitute for form 1449A/PTO		Complete if Known		RECEIVED	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/934,739	MAR 3 2003	
		Filing Date	August 22, 2001		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2675	Technology Center 2800	
		Examiner Name	Bell, Paul A.		
Sheet	3	of	3	Attorney Docket Number	IMMR-020/03US (New) IMM1P018B (Old)

<input checked="" type="checkbox"/>	C20	McAffee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," JPL 1988, JPL D-5172	
	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," Ph.D. Dissertation, MIT, June 1995, archived 7/6/95	
	C22	Jacobsen et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," Intervention/ROV '91 Conference & Exposition, Hollywood, Florida, May 21-23, 1991	
	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration, Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992	
	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990	
	C25	Terry et al., "Tactile Feedback In A Computer Mouse," Proceedings of Fourteenth Annual Northeast Bioengineering Conference, University of New Hampshire, March 10-11, 1988	
	C26	Howe, "A Force-Relating Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," Proceedings of the 1992 IEEE International Conference on Robotics and Automation, Nice, France, May 1992	
	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," IEEE Virtual Reality Annual International Symposium, Seattle, WA, Sep. 18-22, 1993	
	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," Journal of The Acoustical Society of America, Vol. 82, No. 4, October 1987	
	C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," International Computer Technology Conference, The American Society of Mechanical Engineers, San Francisco, CA, August 12-15, 1980	
	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," SOAR '89 Workshop, JSC, Houston, TX, July 25-27, 1989	
	C31	Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," IEEE Transactions on Consumer Electronics, Vol. 41, No. 3, August 1995	
	C32	Marcus, "Touch Feedback in Surgery," Proceedings of Virtual Reality and Medicine The Cutting Edge, Sep. 8-11, 1994	
	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987	
<input checked="" type="checkbox"/>	C34	Ouhyoung, et al., "A Force Feedback Joystick and Its Use in PC Video Games" International Conference on Consumer Electronics - Digest of Technical Papers. IEEE, Conf. 14, June 07, 1995	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number.

² Applicant is to place a check mark here if English language Translation attached.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **1** of **3****Complete If Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6,422,941	7/23/2002	Thomer et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,575,761	11/19/1996	Hajianpour	
		5,437,607	8/1/1995	Taylor	
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		5,283,970	2/8/1994	Aigner	
		5,186,695	2/16/1993	Mangseth et al.	
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		4,127,752	11/28/1978	Lowthorp	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

Examiner
Signature

P. D. HARRIS

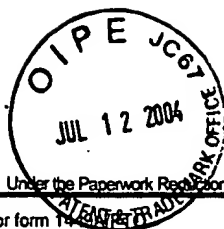
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¹ Applicant's unique citation designation number (optional). ² Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 3

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
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		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
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		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
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		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
✓		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

Examiner
Signature

P. DHARIA

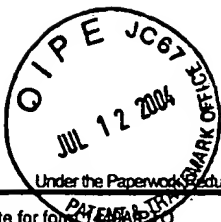
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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3

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3

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Application Number

09/934,739

Filing Date

August 22, 2001

First Named Inventor

Louis B. Rosenberg

Art Unit

2675

Examiner Name

Paul A. Bell

Attorney Docket Number

IMMR020/03US

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		*Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part no. C-25502, Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

Examiner
Signature

P. D. MARIA

Date

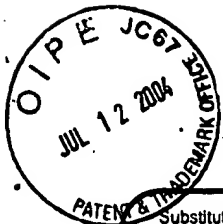
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 14

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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		6,111,577	8/2000	Zilles et al.	
		6,104,158	8/2000	Jacobus et al.	
		6,088,019	7/2000	Rosenberg	
		6,088,017	7/2000	Trembley et al.	
		6,078,308	6/2000	Rosenberg et al.	
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		6,057,828	5/2000	Rosenberg et al.	
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		6,004,134	12/1999	Marcus et al.	
		5,990,869	11/1999	Kubica et al.	
		5,956,484	9/1999	Rosenberg et al.	
		5,889,670	3/1999	Schuler et al.	
		5,877,748	3/1999	Redlich	
		5,844,392	12/1998	Peurach et al.	
		5,831,408	11/1998	Jacobus et al.	
		5,825,308	10/1998	Rosenberg	
		5,818,423	10/1998	Pugliese et al.	
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		5,805,165	9/1998	Thorne, III et al.	
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		5,802,353	9/1998	Avila et al.	
		5,790,108	8/1998	Salcudean et al.	
		5,786,818	7/1998	Brewer et al.	
		5,784,052	7/1998	Keyson	
		5,781,172	7/1998	Engel et al.	
		5,771,037	6/1998	Jackson	
		5,769,640	6/1998	Jacobus et al.	
		5,767,839	6/1998	Rosenberg	
		5,760,764	6/1998	Martinelli	
		5,757,358	5/1998	Osga	
		5,755,577	5/1998	Gillio	
		5,754,023	5/1998	Roston et al.	
		5,745,715	4/1998	Pickover et al.	
		5,742,278	4/1998	Chen et al.	
Examiner Signature	P DHARIA		Date Considered	11-29-05	

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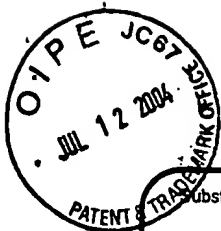
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **2** of **14**

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,739,811	4/1998	Rosenberg et al.	
		5,736,978	4/1998	Hasser et al.	
		5,734,373	3/1998	Rosenberg et al.	
		5,731,804	3/1998	Rosenberg	
		5,721,566	2/1998	Rosenberg et al.	
		5,714,978	2/1998	Yamanaka et al.	
		5,709,219	1/1998	Chen et al.	
		5,694,013	12/1997	Stewart et al.	
		5,691,898	11/1997	Rosenberg et al.	
		5,691,747	11/1997	Amano	
		5,666,473	9/1997	Wallace	
		5,666,138	9/1997	Culver	
		5,643,087	7/1997	Marcus et al.	
		5,642,469	6/1997	Hannaford et al.	
		5,631,861	5/1997	Kramer	
		5,629,594	5/1997	Jacobus et al.	
		5,625,576	4/1997	Massie et al.	
		5,623,642	4/1997	Katz et al.	
		5,623,582	4/1997	Rosenberg	
		5,619,180	4/1997	Massimino et al.	
		5,596,347	1/1997	Robertson et al.	
		5,591,924	1/1997	Hilton	
		5,589,854	12/1996	Tsai	
		5,587,937	12/1996	Massie et al.	
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		5,576,727	11/1996	Rosenberg et al.	
		5,572,639	11/1996	Grant	
		5,570,111	10/1996	Barrette et al.	
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	5,565,887	10/1996	McCambridge et al.		
	5,565,840	10/1996	Thomer et al.		
	5,551,701	9/1996	Bouton et al.		
	5,550,562	8/1996	Aoki et al.		
	5,530,455	6/1996	Gillick et al.		

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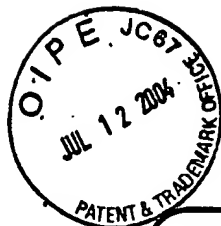
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **3** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,526,480	6/1996	Gibson	
		5,513,100	4/1996	Parker et al.	
		5,512,919	4/1996	Araki	
		5,482,051	1/1996	Reddy et al.	
		5,473,235	12/1995	Lance et al.	
		5,471,571	11/1995	Smith et al.	
		5,467,763	11/1995	McMahon et al.	
		5,459,382	10/1995	Jacobus et al.	
		5,451,924	9/1995	Massimino et al.	
		5,445,166	8/1995	Taylor	
		5,436,640	7/1995	Reeves	
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		5,436,542	7/1995	Petelin et al.	
		5,435,554	7/1995	Lipson	
		5,429,140	7/1995	Burdea et al.	
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		5,417,696	5/1995	Kashuba et al.	
		5,414,337	5/1995	Schuler	
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		5,399,091	3/1995	Mitsumoto	
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		5,397,323	3/1995	Taylor et al.	
		5,396,267	3/1995	Bouton	
		5,389,865	2/1995	Jacobus et al.	
		5,386,507	1/1995	Teig et al.	
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		5,379,663	1/1995	Hara	
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		5,351,692	10/1994	Dow et al.	
		5,313,230	5/1994	Venolia et al.	
		5,298,890	3/1994	Kanamaru et al.	
		5,296,871	3/1994	Paley	
		5,296,846	3/1994	Ledley	

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Signature

P. D. HARRIA

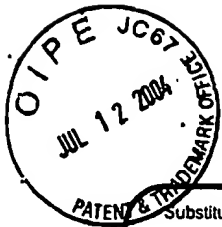
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 14

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,289,273	2/1994	Lang	
		5,286,203	2/1994	Fuller et al.	
		5,275,565	1/1994	Moncrief	
		5,264,768	11/1993	Gregory et al.	
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		5,259,894	11/1993	Sampson	
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		5,243,266	9/1993	Kasagami et al.	
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**INFORMATION DISCLOSURE
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Sheet **5** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,126,948	6/1992	Mitchell et al.	
		5,116,051	5/1992	Moncrief et al.	
		5,107,262	4/1992	Cadoz et al.	
		5,107,080	4/1992	Rosen	
		5,103,404	4/1992	McIntosh	
		5,095,303	3/1992	Clark et al.	
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		5,088,046	2/1992	McMurtry et al.	
		5,080,377	1/1992	Stamper et al.	
		5,072,361	12/1991	Davis et al.	
		5,065,145	11/1991	Purcell	
		5,050,608	9/1991	Watanabe et al.	
		5,044,956	9/1991	Behensky et al.	
		5,040,306	8/1991	McMurtry et al.	
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		4,983,786	1/1991	Stevens et al.	
		4,982,618	1/1991	Culver	
		4,982,504	1/1991	Söderberg et al.	
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		4,961,267	10/1990	Herzog	
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		4,945,501	7/1990	Bell et al.	
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		4,935,728	6/1990	Kley	
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		4,907,970	3/1990	Meenen, Jr.	
		4,891,889	1/1990	Tomelleri	
		4,888,877	12/1989	Enderle et al.	
		4,879,556	11/1989	Duimet	
		4,868,549	9/1989	Affinito et al.	
		4,849,692	7/1989	Blood	
		4,839,838	6/1989	LaBiche et al.	
		4,823,634	4, 1989	Culver	
		4,819,195	4/1989	Bell et al.	

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P. Dharvia

Date
Considered

11-29-05

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **6** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4,811,608	3/1989	Hilton	
		4,803,413	2/1989	Kendiq et al.	
		4,800,721	1/1989	Cemenska et al.	
		4,798,919	1/1989	Miessler et al.	
		4,791,934	12/1988	Brunnett	
		4,787,051	11/1988	Olson	
		4,782,327	11/1988	Kley et al.	
		4,769,763	9/1988	Trieb et al.	
		4,750,487	6/1988	Zanetti	
		4,734,685	3/1988	Watanabe	
		4,724,715	2/1988	Culver	
		4,704,909	11/1987	Grahn et al.	
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		4,689,449	8/1987	Rosen	
		4,688,983	8/1987	Lindbom	
		4,679,331	7/1987	Koontz	
		4,676,002	6/1987	Stocum	
		4,654,648	3/1987	Herrington et al.	
		4,653,011	3/1987	Iwano	
		4,638,798	1/1987	Sheldon et al.	
		4,632,341	12/1986	Repperger et al.	
		4,601,206	7/1986	Watson	
		4,593,470	6/1986	Davies	
		4,571,834	2/1986	Fraser et al.	
		4,550,617	11/1985	Fraignier et al.	
		4,550,221	10/1985	Mabuth	
		4,477,973	10/1984	Davies	
		4,477,043	10/1984	Repperger	
		4,448,083	5/1984	Hayashi	
	4,436,188	3/1984	Jones		
	4,398,889	8/1983	Lam et al.		
	4,216,467	8/1980	Colston		
	4,148,014	4/1979	Burson		
	4,125,800	11/1978	Jones		
	4,114,882	9/1978	Mau		

Examiner Signature		Date Considered	11-29-05
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **7** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,944,798	3/1976	Eaton	
		3,919,691	11/1975	Noll	
		3,890,958	6/1975	Fister et al.	
		3,875,488	4/1975	Crocker et al.	
		3,795,150	3/1974	Eckhardt	
		3,531,868	10/1970	Stevenson	
		3,490,059	1/1970	Paulsen et al.	
		2,906,179	9/1959	Bower	

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Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		WO	9720305		6/1997		
		WO	9719440		5/1997		
		WO	9712357		4/1997		
		WO	9712337		4/1997		
		WO	9642078		12/1996		
		WO	9628777		9/1996		
		WO	9622591		7/1996		
		WO	9616397		5/1996		
		WO	9532459		11/1995		
		WO	9520788		8/1995		
		WO	9520787		8/1995		
		WO	9510080		4/1995		
		WO	9502801		1/1995		
		WO	9502233		of 0000		
		WO	9200559		1/1992		
		JP	4-34610		2/1992		
		GB	2254911	A	10/1992		
		EP	0626634	A2	11/1994		
		EP	0085518	A1	8/1983		
		EP	0265011	A1	4/1998		

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P. DHARIA

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STATEMENT BY APPLICANT**

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Sheet **8** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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<i>[Signature]</i>		EP	0607580	A1	7/1994		

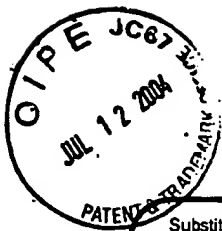
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Sheet **9** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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P. DHARIA

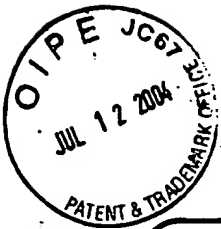
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**INFORMATION DISCLOSURE
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Sheet **10** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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		BURDEA, Grigore et al., "Distributed Virtual Force Feedback," IEEE, May 2, 1993, pp. 25-44.
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Signature**P. DHARIA**Date
Considered**11-29-05**

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Sheet **11** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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		KELLEY, A. J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng., Univ. of Brit. Columbia, 1993, pp. 1-27.
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✓		OUH-YOUNG, M. et al., "Creating an Illusion of Feel: Control Issues in Force Display," Computer Science Dept., Univ. of N. Carolina, 1989, pp. 1-14.

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Sheet **12** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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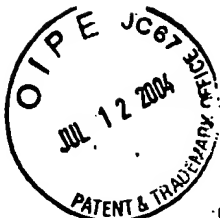
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Signature**P. D. HAKIA**Date
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Sheet **13** of **14**

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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<i>CB</i>		ROSENBERG, Louis B., Crew Systems Directorate Biodynamics and Biocommunications Division Wright-Patterson, Air Force Material Command, Mar. 1993, pp. 1-45.
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Examiner
Signature

P. DHARIA

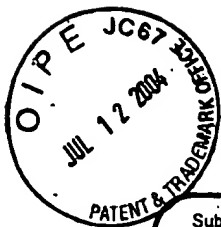
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Sheet **14** of **14**

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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Examiner Signature	<i>P. D. P. R. I. A.</i>	Date Considered	11-29-05
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